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Hibbertia aplacophylla (Dilleniaceae), a new species from south-western Western Australia segregated from *H. notibractea*

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Abstract

Hibbertia aplacophylla K.R.Thiele *sp. nov.* is here segregated from *H. notibractea* J.R.Wheeler. It comprises plants from a disjunct population on the far south coast of Western Australia that differ most significantly from *H. notibractea* in having leaves with a distinct midrib and recurved margins (*cf.* flat with neither midrib nor recurved margins), sepals that are quite glabrous (*cf.* ciliate-margined), and anthers held erect at the ends of the fused filaments (*cf.* deflexed).

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Introduction

Three Western Australian species in *Hibbertia* Andr. subgen. *Hibbertia* described by Judy Wheeler (Wheeler 1984, 2002) comprise the informal *H. ferruginea* J.R.Wheeler species group. All three are restricted to the far south-west corner of Western Australia, approximately between Bunbury and Albany. The first-named, *H. ferruginea*, was segregated by Wheeler (1984) while delimiting species in the *H. desmophylla* (Benth.) F.Muell.–*H. helianthemoides* (Turcz.) F.Muell. species group for the *Flora of the Perth Region* (Wheeler 1987). The other two species, *H. notibractea* J.R.Wheeler and *H. trichocalyx* J.R.Wheeler, were described while Wheeler was preparing a *Flora of the South West* (Wheeler 2002).

Wheeler (2002) noted that there were morphological differences between two disjunct areas of distribution of her *H. notibractea*, with plants from the Leeuwin-Naturaliste Ridge (between Dunsborough and Augusta) having smooth leaves with flat margins, and plants from the Nornalup-Peaceful Bay area having slightly tuberculate leaves with prominently recurved margins.

Further collecting has confirmed that the two areas of distribution are convincingly disjunct, by *c.* 150 km, between the Scott River Plain and east of Walpole. Plants in each area of distribution have consistent morphology, and there are also differences in sepal indumentum and anther disposition. While clearly closely related, I regard that the differences are significant and recognise plants from the east of the range, between Walpole and Denmark, as the new species *Hibbertia aplacophylla* K.R.Thiele.

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Methods

All specimens at PERTH were examined.

Taxonomy

Hibbertia aplacophylla K.R.Thiele, *sp. nov.*

Type: Boat Harbour Road 2.5 km from the South Coast Highway, 6 October 2019, *K.R.Thiele* 5591 (holo: PERTH 09187294; iso: AD, CANB).

Erect to sprawling *shrubs* 0.2–0.4(–0.8) m high, single-stemmed at base and probably reseeding after fire; branchlets sparsely appressed-pubescent when young with whitish, cobwebby hairs, glabrescent; older stems with papery, pale bark decorticating in strips. *Leaves* spreading, scattered (fascicled on older stems due to axillary short-shoots), narrowly obovate, (8–)10–20(–40) mm long, 1–2(–3) mm wide, the margins recurved to the prominent midrib at least when dry; adaxial surface smooth to obscurely or prominently tuberculate, with fine, spreading hairs when young, often glabrescent; abaxial surface glabrous except for the midrib, which has an indumentum as for the adaxial surface; leaf base somewhat dilated and stem-clasping; apex obtuse and thickened, usually slightly recurved. *Flowers* sessile (rarely shortly pedunculate), mostly solitary on short-shoots lateral to the main stems; flower-subtending bracts 3–6, pale, scarious, broadly ovate to oblong, 4.5–7 mm long, glabrous or with few appressed hairs towards the apex and on the upper margins, the outermost truncate-aristate, the innermost acute. *Sepals* ovate-triangular, 5–8 mm long, glabrous including the margins; midribs not prominent but the outer sepals somewhat keeled towards their apices; outer sepals acute to acuminate; inner sepals similar in size, apex shape and indumentum to the outer but broader and with scarious margins. *Petals* 5, yellow, obovate, 5–8 mm long, emarginate. *Stamens* 11, distributed around the carpels, 9 in 3 bundles of 3 each fused by their filaments as far as the base of the anthers, the remaining 2 free; filaments 1–1.2 mm long; anthers rectangular-obloid, 1.4–1.8 mm long, ±erect and parallel from the apex of the filament bundle, dehiscing by introrse, longitudinal slits. *Staminodes* absent. *Carpels* 3; ovaries obovoid-globular, glabrous; styles 1.5–2.4 mm long, erect to spreading-erect, excentric on the carpel apex. *Ovule* 1 per carpel. *Fruiting carpels* smoothly and evenly ellipsoid; seeds pale yellowish-brown, evenly ellipsoid, *c*. 2 mm long, with a thin, membranous aril at base (2 fruiting specimens examined).

Specimens examined (numbers refer to PERTH sheets): Peaceful Bay (3076598, 3076660, 3076679, 3076687), Near Denmark (4071689, 5502969), Walpole-Nornalup National Park (4071700, 4071719), Bow River (4071670), Denbarker State Forest (4071646), Walpole District (3128652), Boat Harbour (3051307), Nornalup (4730593), South Coast Highway - Ficifolia Road (6390447).

For full specimen details, see the following batch search of the ALA for the above set of specimens: https://bio-cache.ala.org.au/occurrences/search?q=qid:1676093418535#tab_mapView

Etymology. From the Greek *a-* (not, without), *plakon* (flat) and *phyllon* (a leaf), in reference to the leaves that, unlike *H. notibractea*, are not flat.

Distribution & Habitat. Occurs between Peaceful Bay and Denmark (Fig. 1). Characteristically grows at the base of or on low sandy rises adjacent to winter-wet, peaty flats, in heathlands and woodlands, with associated species including *Corymbia ficifolia*, *Eucalyptus marginata*, *Allocasuarina fraseriana*, *Banksia attenuata*, *B. littoralis*, *Agonis flexuosa*, *Homalospermum firmum*, *Beaufortia sparsa* and *Anarthria scabra.*

Phenology. Flowers September to December.

Notes. Hibbertia aplacophylla is similar in many respects to, and is almost certainly closely related to, *H. notibractea*, both species sharing flowers surrounded by 3–6 conspicuous, pale, papery bracts, and eleven stamens surrounding three glabrous carpels (nine stamens in three bundles of three each with fused filaments, and two stamens free). The two species differ consistently and significantly in leaf morphology and sepal indumentum. *Hibbertia aplacophylla* has leaves with a distinct and prominently thickened midrib below and with the leaf margins recurved and often almost meeting the midrib. By contrast, *H. notibractea* as here circumscribed (i.e. including only plants in the vicinity of the Leeuwin-Naturaliste Ridge between approximately Dunsborough and Augusta) has leaves that are flat with scarcely any externally visible midrib, and with flat margins. Leaves of *H. aplacophylla* are also generally adaxially obscurely to prominently tuberculate, whereas those of *H. notibractea* are always smooth and non-tuberculate. *Hibbertia aplacophylla* has sepals that have glabrous margins, while in *H. notibractea* the sepal margins are finely and sparsely to distinctly ciliate with white or rusty hairs. There is also a subtle but distinct difference in the disposition of the anthers: in *H. aplacophylla* the anthers are all ± erect from the apex of the filament bundle, with very little free filament evident above the fused portion, while in *H. notibractea* the anthers have short free filaments above the fused portion and are usually widely divergent from each other. Differences in all these characters are significant in *Hibbertia.*

The two species are geographically disjunct, by approximately 150 km between the Scott River Plain (the south-eastern-most known occurrence of *H. notibractea*) and east of Walpole (the western-most known occurrence of *H. aplacophylla*). Sufficient collecting has occurred within the disjunction that these conspicuous species, which are common within their areas of occurrence, are likely to have been collected if they occurred there. The reason why intervening habitat is presumably unsuitable for either species is unknown.

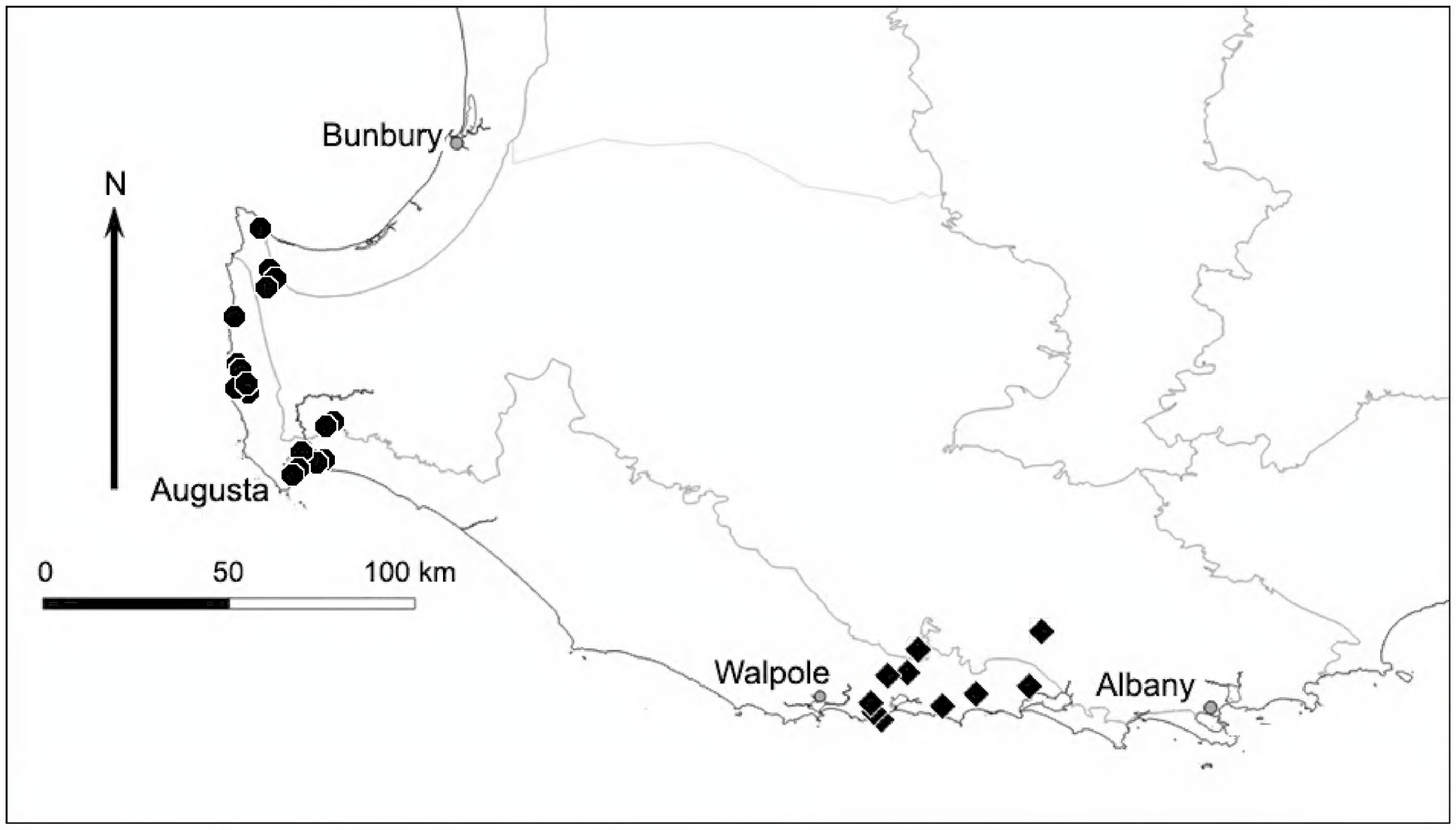

Fig. 1. Distribution of *Hibbertia aplacophylla* (diamonds) and *H. notibractea* (circles) in far south-west Western Australia.

Note that the specimen illustrated in Wheeler (2002) as *H. notibractea* (*Gibson & Lyons* 884) is clearly *H. aplacophylla.*

Hibbertia notibractea J.R.Wheeler, *Nuytsia* 14(3): 420 (2002).

Type: Blackwood River, Fisher Road near Molloy Caravan Park, Western Australia, 5 September 1983, *J.R. Wheeler* 2122B (holo: PERTH 03076466; iso: AD, CANB, K).

Hibbertia sp. rigid bracts (J.R. Wheeler 3220).

Erect to sprawling *shrubs* 0.1–0.3(–0.6) m high, often multi-stemmed at base; branchlets moderately pubescent when young with short, curled, greyish hairs, glabrescent; older stems with papery, grey bark decorticating in strips. *Leaves* spreading, scattered (fascicled on older stems due to axillary short-shoots), narrowly obovate, 8–15(–25) mm long, 1–2(–3) mm wide, flat, with a scarcely visible midrib; both surfaces smooth, glabrous or with fine, loosely spreading, crisped, whitish hairs when young, usually glabrescent; leaf base somewhat dilated and stem-clasping; apex obtuse, straight. *Flowers* sessile, mostly solitary on short-shoots lateral to the main stems; flower-subtending bracts 3–6, pale, scarious, orbicular to broadly oblong, 4–6 mm long, sparsely to moderately pilose to glabrous except for a distinct ciliate fringe of very short to prominent, white or rusty hairs, the outermost bracts often aristate, the innermost acute. *Sepals* broadly ovate, 6–9 mm long, glabrous except for a sparse to distinct ciliate fringe of prominent to very short, white or rusty hairs; midribs not prominent; outer sepals acute to acuminate; inner sepals similar in size, apex shape and indumentum to the outer but broader and with more broadly scarious margins. *Petals* 5, yellow, obovate, 7–10 mm long, emarginate. *Stamens* 11, distributed around the carpels, 9 in 3 bundles of 3 each fused by their filaments almost to the anthers (but with a short free portion), the remaining 2 free; filaments 1.0–1.7 mm long; anthers rectangular-obloid, 1.8–2.0 mm long, divergent from each other at the apex of the filament bundle, dehiscing by introrse, longitudinal slits. *Staminodes* absent. *Carpels* 3; ovaries obovoid-globular, glabrous; styles 1.5–2.0 mm long, spreading-erect, excentric on the carpel apex. *Ovule* 1 per carpel. *Fruiting carpels* smoothly and evenly ellipsoid; seeds pale yellowish-brown, evenly ellipsoid, *c*. 2 mm long, with a thin, membranous aril at base (1 fruiting specimen examined).

Specimens examined (numbers refer to PERTH sheets): Augusta (4849248, 6324363), Eagle Bay (5600545), Forest Grove (4071654, 4734033), Scott River (5486122, 8378126, 8381488), Scott National Park (3052311, 3124266), Rainbow Cave Road (5461030, 5682541), Blackwood River (3076539), Yelverton (7490364, 7958706, 8138699), Calgardup (5515319), Leeuwin-Naturaliste National Park (3132765), Nindup Plain (5486041), Alexandra Bridge (3076423).

For full specimen details, see the following batch search of the ALA for the above set of specimens: https://biocache.ala.org.au/occurrences/search?q=qid:1676093177179#tab_mapView

Distribution & Habitat. Occurs between Dunsborough and the Scott River Plain east of Augusta, and near the

Blackwood River near Alexandra Bridge (Fig. 1), in open woodlands and shrublands at the margins of swamps, in grey to black, peaty sand, associated with *Eucalyptus marginata*, *Corymbia calophylla*, *Banksia grandis*, *B. ilicifolia*, *Agonis flexuosa*, *Taxandria parviceps*, *Pericalymma ellipticum*, *Hibbertia furfuracea*, *Xanthorrhoea preissii, Dasypogon bromeliifolius, Lyginia barbata* and *Anarthria scabra*.

Phenology. Flowers July to October.

Notes. See *H. aplacophylla* for differences. The specimen illustrated in Wheeler (2002) as *H. notibractea* (*Gibson & Lyons* 884) is clearly *H. aplacophylla.*

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